

Relatively mature Chestnut Oak Forest tends to occur on steep north and west-facing slopes interspersed with the steep edges of granite domes. Chestnut oak is typically the canopy dominant along with scarlet oak and pines. A dense heath shrub layer comprised of rosebay rhododendron (*Rhododendron maximum*) is present in this community. Herbs are sparse, though a small population of French Broad heartleaf is scattered under the heath. Rock outcrops within this community are known to harbor populations of green salamanders (*Aneides aeneus*).

A mature example of Pine-Oak/Heath occurs in association with granitic outcrops on the ridge north of Joanna Mountain. The canopy is dominated by mature pitch pine mixed with white pine, chestnut oak, and southern red oak. Mountain laurel, black huckleberry, and occasional Carolina hemlock are typical shrubs. Herb composition contains xeric herbs typical of both Low Elevation Granitic Domes and dry Montane Oak-Hickory Forest. Boulders and rock outcrops create hummocky topography on this ridge.

Piedmont/Mountain Semipermanent Impoundments are found in coves in the eastern arms of Lake Julia. These wetlands have developed due to backwater effects along impounded tributaries and beaver activity. A variety of microhabitats have formed, including an open-water beaver pond, herb and shrub zones, a delta-wetland, and a rhododendron fringe with a small seep. The edges are shaded by adjacent oak and cove forest. The open, impounded areas contain a mix of wetland shrub and emergent herbaceous zones. Dominant shrubs include tag alder (*Alnus serrulata*), steeplebush (*Spiraea tomentosa*), winterberry (*Ilex verticillata*), male-berry (*Lyonia ligustrina*), clammy azalea (*Rhododendron viscosum*), and swamp dewberry (*Rubus hispidus*). A variety of grasses, sedges, and forbs are common in the herb layer including reed-grass (*Calamagrostis cinnoides*), autumn bent-grass (*Agrostis perennans*), small-leaved frost-aster (*Symphyotrichum dumosum*), arrowhead (*Sagittaria latifolia*), marsh primrose-willow (*Ludwigia palustris*), American bur-reed (*Sparganium americanum*), climbing fern (*Lygodium palmatum*), bushy broomsedge (*Andropogon glomeratus*), rushes (*Juncus* spp.), and bulrush (*Scirpus expansus*). A population of French Broad heartleaf, seepage rush (*Juncus gymnocarpus*), and rough sedge (*Carex scabrata*) all grow in a shaded seep where a small stream merges with the back edge of the wetland. The community also encompasses a stream delta of Briery Fork, which was only observed at a distance.

Mature examples of Acidic Cove Forest are present along most of the streams that flow off the slopes of Joanna Mountain. The canopy is dominated by mature eastern hemlocks, tulip poplar, white oak, and white pine. Rosebay rhododendron, mountain laurel, and mountain dog-hobble (*Leucothoe fontanesiana*) form a dense shrub layer. Some infestation by the hemlock wooly adelgid (*Adelges tsugae*) was observed.

MANAGEMENT AND PROTECTION: The entire site and surrounding area are contained within a Dedicated State Nature Preserve in DuPont State Forest. Management of the site should focus on treatment of eastern hemlocks along coves and Carolina hemlocks to prevent loss of trees to the hemlock wooly adelgid. Reintroduction of fire on ridges, south-facing slopes, and other fire-suppressed areas is recommended where feasible to reduce understory growth and organic build-up in fire-prone woodlands. Removal of white pine plantations and restoration of xeric hardwoods stands would enhance the Montane Oak-Hickory Forest and provide additional hard-mast for wildlife.